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SEROLOGIC TESTING FOR GERMAN MEASLES (RUBELLA)

The hemagglutination-inhibition test for detection of RUBELLA antibodies is now available in our laboratory. About 2 cc of serum is required. It may be submitted as 4 - 5 cc of clotted blood in standard serology vials.

Here is a suggested priority for this test:

1. Determination of immune status of a pregnant woman (first trimester) with known exposure to rubella. A single specimen, obtained as soon as possible after exposure (at least within five days), is required.
2. Confirmation of rubella infection in pregnant women (first trimester). An acute serum obtained within the first four days of rash and a convalescent specimen seven - ten days after the acute specimen are required.
3. Investigation of complications presumed to be due to infection with rubella (encephalitis, thrombocytopenia, rubella syndrome). Acute and convalescent serums are desirable but a single convalescent one will provide some information. In cases suspected of being rubella syndrome, we would like to receive specimens on both infant and mother, with the date of birth and history of maternal rubella provided.
4. Confirmation of clinical cases of rubella in a household where there is an expectant mother. Both acute and convalescent specimens are required.
5. All other cases significant to public health.

Here are some suggestions for interpretation of results of the HAI test for rubella antibodies:

1. When a single specimen is submitted within seven days after exposure and the titer is <1:10, we report "no serologic evidence of past infection with rubella virus". Titers ≥1:10 are interpreted as "serologic evidence of past infection with rubella at some undetermined time" and this is taken as an indication of immunity.
2. With paired sera, a change in titer from <1:10 to ≥1:10 or a four-fold increase in titer is interpreted as "serologic evidence of recent infection with rubella virus".

The nationwide rubella epidemic of 1964-65 focused attention on the role of this virus in causing birth defects. In-utero infection may occur during the first trimester and may persist until birth and thereafter. This chronic-infection syndrome may cause congenital heart and eye defects, growth retardation, purpura with thrombocytopenia, hepatosplenomegaly, encephalomyelitis, lesions of the long bones, and other defects. There is disagreement as to the probability of the above occurring so I will quote from the Wisconsin Laboratory Newsletter for June 1968: "Prospective studies made during and following the 1964 epidemic place the overall risk for abortion or malformation at between 30 and 70% for exposure occurring during the first four weeks of gestation, with a reduction to 10 to 25% for the fourth four week period." Some studies have given figures as low as 17%. Studies at NIH showed that 18% of mothers were susceptible to rubella before the 1964 epidemic. This was lowered to 8% susceptible following the epidemic.

German measles has been at a low level in Montana during the past few years with some evidence of increased activity recently. The prognosticators give 1970 as the year of our next wave of rubella infections. Extensive efforts are underway to make vaccination of high-risk groups available by then.

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